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FLEXSTAB Final Report (Texas A&M Univ.)  
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# TEES

TEXAS ENGINEERING EXPERIMENT STATION  
TEXAS A&M UNIVERSITY  
COLLEGE STATION TEXAS 77843



User's Guide to Program FLEXSTAB

A Final Report

to the

National Aeronautics and Space Administration  
Manned Spacecraft Center

research performed under  
Contract No. NAS 9-11303

by

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Investigator and Associate Professor  
of Electrical Engineering

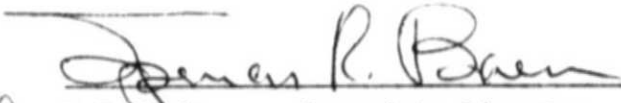
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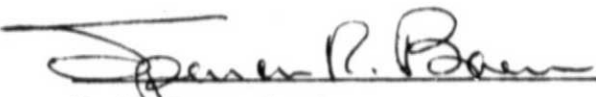
D. Colunga, Co-Principal Investigator and  
Associate Professor, Computing Science

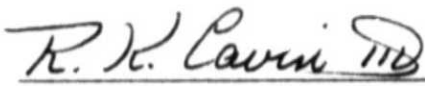
February 23, 1975

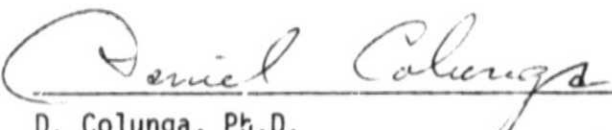
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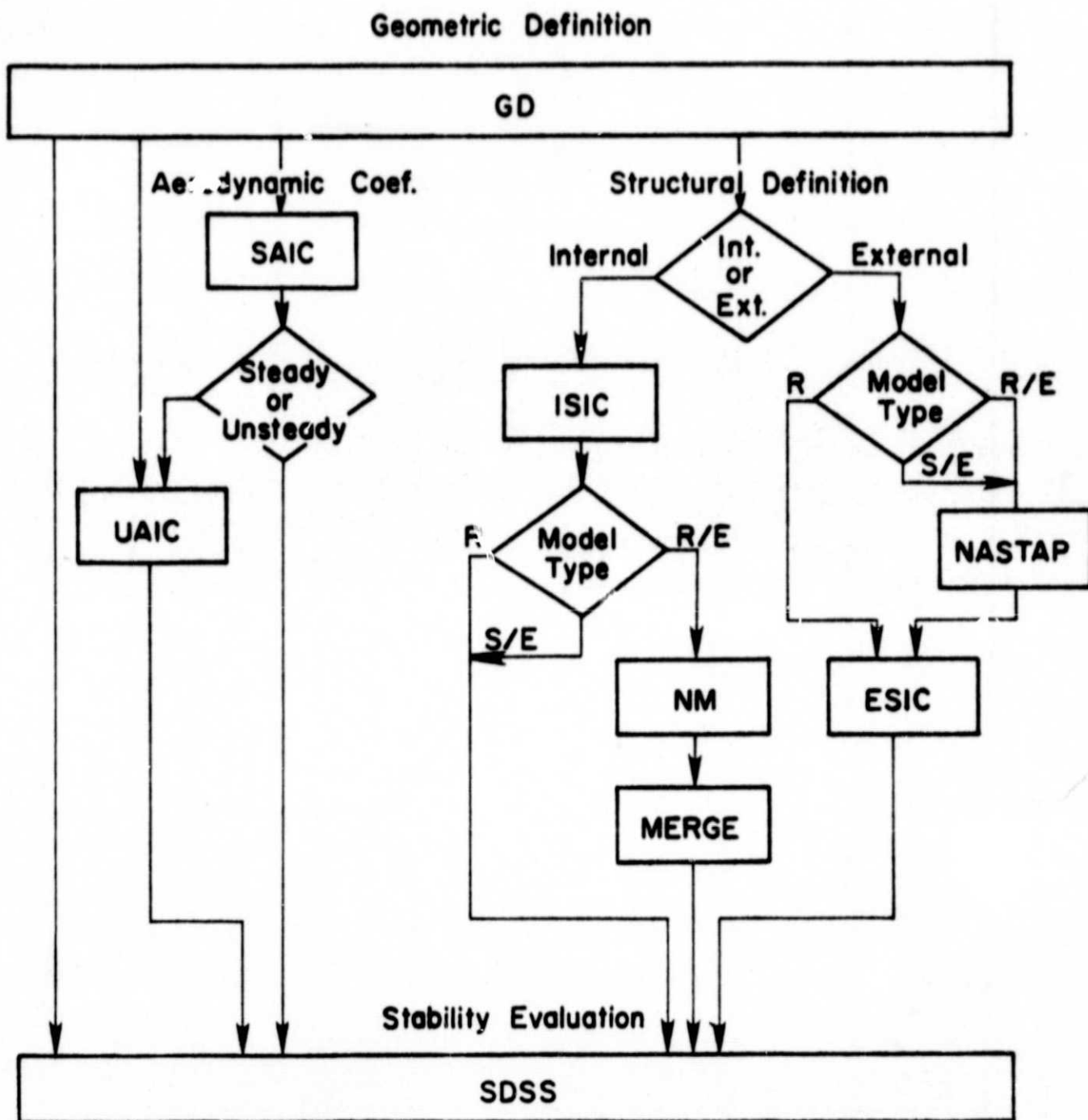
  
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Industrial Engineering/Computing Science

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### Summary

This document represents a user's manual for correctly submitting FLEXSTAB program runs on the UNIVAC 1108 computer system. All major program modules, converted and correctly executed by Texas A&M project personnel, have been included. All CUR control cards have been documented for the user's convenience. The JOB card parameters have also been included in order to provide some idea as to "reasonable" time estimates for the program modules.



**FIG. 1 FLEXTAB FUNCTIONAL FLOW**

Geometry Definition (GD) ProgramInput Required

GD Data Deck

Program Required

GD program in Tape PCF = Tape B

Program Correction Required

None

Output File Generated

Tape A = GD tape = A05090

Geometry description

File Destinies

Tape A: SAIC

UAIC

ISIC

ESIC

SDSS

TH

GDPL0T

Cover Sheet Format

Ref-GD/1

Control Cards

Ref-GD/2



## INSTRUCTIONS FOR CENTRAL COMPUTER COMPLEX COMPUTER RUNS

4

Ref-GD/1

PROGRAMMER D. Colunga			BADGE NO. 1048	BOX NO. C-16	PHONE NO. 5971	DATE	PRIORITY & INITIALS
DIVISION CODE FD 32	PROG. NO. E169	PROJ. NO. 3696E	EST. TIME 1	MAX. TIME 2	LINES OUTPUT 6k	DECK NO.	

OPERATING SYSTEM			TYPE OF RUN		LOG NO.
1108 FORTRAN V <input type="checkbox"/>	3200 SCOPE <input type="checkbox"/>	PROD. <input checked="" type="checkbox"/>	TEST <input type="checkbox"/>	COMPUTER REQUIREMENTS	
1108 FORTRAN IV <input checked="" type="checkbox"/>	3200 SMARTS <input type="checkbox"/>	OTHER (EXPLAIN BELOW)		1108 <input checked="" type="checkbox"/>	3200 <input type="checkbox"/>
1108 OTHER <input type="checkbox"/>	3200 OTHER <input type="checkbox"/>			OTHER	

INPUT TAPES				OUTPUT TAPES				SAVE	PROCESSING REQUIRED
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME			
*	B		PCF	A	A05090	A		Yes	

WORKING TAPES				REEL NO.	NO. FRAMES
				4060 <input type="checkbox"/>	
				16 MM <input type="checkbox"/>	35 MM <input type="checkbox"/>

ABNORMAL STOPS	TOTAL TAPE DRIVES USED	ACTUAL TIME USAGE
STOP AT LOC. SR:	2	STOP
LOOPING LOC. THRU	DUMP INSTRUCTIONS	
EXCESS OUTPUT	NO DUMP <input checked="" type="checkbox"/>	START
EXCESS TIME	DUMP ON STOP	
	DUMP ON LOOP	
	OTHER	

PROGRAMMER'S COMMENTS

\* Tape B is a special Texas A&amp;M PCF tape.

OPERATOR'S COMMENTS

SYSTEM  
OPERATOR

Ref-GD/2

VP RUN 01048,FD32,C16,3696E,E169,C,2,6

D. COLUNGA

VN MSG FILE REQ TAPE 2 EH 432 1 FSTRN 1

V ASG A=A

V ASG B=PCF

V ASG E

XQT CUR

TRW B

IN B

REL B

V XQT GD

GD DATA DECK

V FIN

Steady Aerodynamic Influence Coefficient (SAIC) ProgramInput Required

- (1) Tape A = GD tape = A05090 (File generated by GD run)
- (2) SAIC data deck

Program Required

SAIC in PCF tape (=Tape E)

Program Corrections Required

None

Output Files Generated

- (1) Tape B = SAIC TAPE B = A01827

File Destinies

- (1) Tape B: UAIC  
CAIC  
SDSS

Cover Sheet Format

Ref-SAIC/1

Control Cards

Ref-SAIC/2

SAIC Data Deck

Ref-Boeing Document

## INSTRUCTIONS FOR CENTRAL COMPUTER COMPLEX COMPUTER RUNS

7

Ref-SAIC/1

PROGRAMMER D. Colunga			BADGE NO. 1048	BOX NO. C-16	PHONE NO. 5971	DATE 6/2	PRIORITY & INITIALS		
DIVISION CODE FD-32	PROG. NO. E169	PROJ. NO. 3696E	EST. TIME 50	MAX. TIME 240	LINES OUTPUT 2k	DECK NO.			
OPERATING SYSTEM			TYPE OF RUN			LOG NO.			
1108 FORTRAN V <input type="checkbox"/> 3200 SCOPE <input type="checkbox"/>			PROD. <input checked="" type="checkbox"/> TEST <input type="checkbox"/>			COMPUTER REQUIRED: VTS			
1108 FORTRAN IV <input checked="" type="checkbox"/> 3200 SMARTS <input type="checkbox"/>			OTHER (EXPLAIN BELOW)			1108 <input checked="" type="checkbox"/> 3200 <input type="checkbox"/>			
1108 OTHER <input type="checkbox"/> 3200 OTHER <input type="checkbox"/>						OTHER			
INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	A	A05090	A						
	E		PCF						
				B	A01827	SAIC		X	
WORKING TAPES									
				4060 <input type="checkbox"/>		REEL NO.		NO. FRAMES	
				16 MM <input type="checkbox"/> 35 MM <input type="checkbox"/>					
ABNORMAL STOPS			TOTAL TAPE DRIVES USED			ACTUAL TIME USAGE			
STOP AT LOC. SR:			3			<div>STOP</div> <div>START</div>			
			DUMP INSTRUCTIONS						
LOOPING: LOC. TH/U			NO DUMP X						
EXCESS OUTPUT			DUMP ON STOP						
EXCESS TIME			DUMP ON LOOP						
			OTHER						
PROGRAMMER'S COMMENTS									

PCF = Special Texas A&amp;M Input Tape.

OPERATOR'S COMMENTS

SYSTEM  
OPERATOR

VZ RUN 01048,FD32,C16,3696E,E169,C,240,2 D. COLUNGA  
VN MSG FILE REQ TAPE 3 FH432 2 FSTRN 16  
V ASG A=A05090  
V ASG F=PCF  
VW ASG B=SAIC  
V ASG C,D,K,L,M,N,O,P,Q,R,S,T,U,V,W,X  
V XQT CUR  
TRW E  
IN E  
ERS  
IN E  
REL E  
V MAP PROG  
SEG AIC-MPAK-\*(CPTGEN,AICGEN,TRNOVR,CAMTHK-\*(CAMBER,THICK))  
MPAK SEG RHEAD-WHEAD-RVEC-WVEC-VLIN-VIP-LOCATE  
V XQT PROG

SAIC DATA DECK (cf REF-Boeing Document)

VFIN

## Internal Structural Influence Coefficient (ISIC) Program

### Input Required

- (1) Tape A - GD Tape = A05090 (File Generated by GD Run)
- (2) ISIC Data Deck

### Program Required

ISIC in A06973 tape (= Tape Z)

### Output Files Generated

- |                     |                                      |
|---------------------|--------------------------------------|
| (1) Tape B = A07178 | Matrix Catalog                       |
| (2) Tape C = A03098 | Symmetric Normal Modes Matrices      |
| (3) Tape D = A13214 | Anti-symmetric Normal Modes Matrices |
| (4) Tape E = A04911 | Symmetric SDSS Matrices              |
| (5) Tape F = A01734 | Anti-symmetric SDSS Matrices         |
| (6) Tape G = A07233 | Elastic Axis Plot Tape               |

### File Destinies

- (1) Tape B: NM, SDSS
- (2) Tape C: NM
- (3) Tape D: NM
- (4) Tape E: SDSS, MERGE
- (5) Tape F: SDSS, MERGE
- (6) Tape G: SLOAD, EAPLOT

### Cover Sheet Format

Ref-ISIC/1

### Control Cards

Ref-ISIC/2

### ISIC Data Deck

Ref-Boeing Document

## INSTRUCTIONS FOR CENTRAL COMPUTER COMPLEX COMPUTER RUNS

10

Ref-ISIC/1

PROGRAMMER D. Colunga			BADGE NO. 1619	BOX NO. C-16	PHONE NO. 5971	DATE 6/23	PRIORITY & INITIALS	
DIVISION CODE EX 24	PROG. NO. E169	PROJ. NO. 3696E	EST. TIME 120	MAX. TIME 180	LINES OUTPUT 12k	DECK NO.		

OPERATING SYSTEM			TYPE OF RUN			LOG NO.		
1108 FORTRAN V <input type="checkbox"/>	3200 SCOPE <input type="checkbox"/>	PROD. <input checked="" type="checkbox"/>	TEST <input type="checkbox"/>	COMPUTER REQUIREMENTS				
1108 FORTRAN IV <input checked="" type="checkbox"/>	3200 SMARTS <input type="checkbox"/>	OTHER (EXPLAIN BELOW)			1108 <input checked="" type="checkbox"/>	3200 <input type="checkbox"/>		
1108 OTHER <input type="checkbox"/>	3200 OTHER <input type="checkbox"/>				OTHER			

INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	A	A05090	A	B	A07178	B		Yes	
	Z	A06973	Z	C	A03098	C		Yes	
				D	A13214	D		Yes	
				E	A04911	E		Yes	
				F	A01734	F		Yes	
WORKING TAPES				G	A07233	G		Yes	
				4060 <input type="checkbox"/>		REEL NO.		NO. FRAMES	
				16 MM <input type="checkbox"/>		35 MM <input type="checkbox"/>			

ABNORMAL STOPS		TOTAL TAPE DRIVES USED		ACTUAL TIME USAGE	
STOP AT LOC. SR:		8		<div>STOP</div> <div>START</div>	
LOOPING: LOC. THRU		DUMP INSTRUCTIONS			
EXCESS OUTPUT		NO DUMP X			
EXCESS TIME		DUMP ON STOP			
		DUMP ON LOOP			
		OTHER			

PROGRAMMER'S COMMENTS

OPERATOR'S COMMENTS

S/STEM OPERATOR

WZ RUN 01619,EX24,C16,3696E,E169,C,180,12

D. COLUNGA

N MSG FILE REQ TAPE 8 FH432 2 FSTRN 16

ASG A=A05090

S ASG B=B

S ASG C=C

VS ASG D=D

VS ASG E=E

VS ASG F=F

VS ASG G=G

V ASG H,I,J,K,L,M,N,O,P,S,T,U,V,W,X,Y

V ASG Z=A06973

V XQT CUR

TRW Z

IN Z

REL Z

V MAP PROG

SEG ISIC-MPAK-\*(GDPROG,OPTION,THRE,FMAT)

MPAK SEG VIP-VLIN-RVEC-WVEC-RHEAD-WHEAD-LOCATE

THRE SEG SIC-\*(SDEF,SAFMAT,TMAT,MMAT)

V XQT PROG

ISIC DATA DECK (cf REF-Boeing Document)

WFIN



Normal Modes (NM) ProgramInput Required

- (1) Tape A = ISIC catalog tape = A06909 (File generated by ISIC)
- (2) Tape C = Symm ISIC tape = A06668 (File generated by ISIC)
- (3) Tape D = Asym ISIC tape = A06292 (File generated by ISIC)
- (4) NM Data Deck

Program Required

NM program in T0204 tape = Tape Z

Program Correction Required

- (1) Insert New SUBROUTINE AGGIE to read as follows:

```

SUBROUTINE AGGIE
DIMENSION MT(12)
REWIND 1
REWIND 2
100 READ (1) I,J,K,MT
WRITE (2) I,J,K,MT
IF(I.GT.-1) GO TO 100
REWIND 1
REWIND 2
STOP
END

```

REASON: Tape A should contain the original ISIC catalog, while tape B contains the altered catalog at the end of Normal Modes execution.

NOTE: (1) This program should precede all Normal Modes runs.  
 (2) Tape B from ISIC should be mounted on unit A (not unit B)

- (2) Statement number 74 of MONITR: New Insert to read as follows:

```
IF(ICF.EQ.0) GO TO 100
```

REASON: Check value of ICF to get out of DO LOOP.

- (3) Statement number 26 of CTINIT:  
Delete 4 statements and newly insert to read as follows:

```

Delete  COMMON/CT01/LCAT
COMMON/CT02/NFOUT
COMMON/CT03/LFOUT(6)
COMMON/CT04/NMOUT(6)

```

```
Insert  COMMON/CT01.LCAT,NFOUT,LFOUT(6),NMOUT(6)
```

REASON: Make common statement compatible with the other subroutines

- (4) Statement number 46 and 47 of DSN: New Insert to read as follows:

```

REWIND 7
REWIND 8

```

REASON: Rewind Tape E and Tape F

Output File Generated

- |                                       |  |
|---------------------------------------|--|
| (1) Tape B = NM catalog tape = A08012 | Matrix catalog from ISIC to SDSS           |
| (2) Tape E = Symm NM tape = A01078    | Symmetric Matrices to SDSS program         |
| (3) Tape F = Asym NM tape = A01344    | Anti-symmetric Matrices to SDSS<br>program |
| (4) Tape G = Shape NM tape = A08045   | Model shape tape to NMPLLOT program        |

File Destinies

- (1) Tape B: SDSS
- (2) Tape E: MERGE
- (3) Tape F: MERGE
- (4) Tape G: NMPLLOT

Cover Sheet Format

Ref-NM/1

Control Cards

Ref-NM/2

## INSTRUCTIONS FOR CENTRAL COMPUTER COMPLEX COMPUTER RUNS

14

Ref-NM/1

PROGRAMMER D. Colunga			BADGE NO. 1619	BOX NO. C-16	PHONE NO. 5971	DATE 6/30	PRIORITY & INITIALS
DIVISION CODE EX 24	PROG. NO. E169	PROJ. NO. 3696E	EST. TIME 40	MAX. TIME 50	LINES OUTPUT 5k	DECK NO.	

OPERATING SYSTEM			TYPE OF RUN		LOG NO.	
1108 FORTRAN V <input type="checkbox"/>	3200 SCOPE <input type="checkbox"/>	PROD. <input checked="" type="checkbox"/>	TEST <input type="checkbox"/>	COMPUTER REQUIREMENTS		
1108 FORTRAN IV <input checked="" type="checkbox"/>	3200 SMARTS <input type="checkbox"/>	OTHER (EXPLAIN BELOW)		1108 <input checked="" type="checkbox"/>	3200 <input type="checkbox"/>	
1108 OTHER <input type="checkbox"/>	3200 OTHER <input type="checkbox"/>			OTHER		

INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	A	A06909	A	B	A08012	B		Yes	
	C	A06668	C	E	A01078	E		Yes	
	D	A06292	D	F	A01344	F		Yes	
	Z	T0204	Z	G	A08045	G		Yes	

WORKING TAPES							
				4060 <input type="checkbox"/>	REEL NO.	NO. FRAMES	
				16 MM <input type="checkbox"/>	35 MM <input type="checkbox"/>		

ABNORMAL STOPS		TOTAL TAPE DRIVES USED		ACTUAL TIME USAGE	
STOP AT LOC. SR:		8		<div>STOP</div> <div>START</div>	
		DUMP INSTRUCTIONS			
LOOPING: LOC. THRU		NO DUMP X			
EXCESS OUTPUT		DUMP ON STOP			
EXCESS TIME		DUMP ON LOOP			
		OTHER			

PROGRAMMER'S COMMENTS

\*Tape Z = T0204 is a special Texas A&amp;M Tape

OPERATOR'S COMMENTS

SYSTEM  
OPERATOR

▽P RUN 01619,EX24,C16,3696E,E169,C,50,5  
▽N MSG FILE REQ TAPE 8 FH432 2 FSTRN 8  
▽ ASG A=A06909  
▽S ASG B=A08012  
▽ ASG C=A06668  
▽ ASG D=A06292  
▽S ASG E=A01078  
▽S ASG F=A01344  
▽S ASG G=A08045  
▽ ASG H,I,J,K,L,M,N,P  
▽ FOR AGGIE

D. COLUNGA

AGGIE SOURCE DECK

▽ XQT AGGIE  
▽ XQT CUR  
TRW A  
REL A  
▽ ASG Z=T0204  
▽ XQT CUR  
TRW Z  
IN Z  
TRW Z  
REL Z  
▽ FOR,\* MONITR,MONITP

-73

IF(ICF.EQ.0) GO TO 100

▽ FOR,\* CTINIT,CTINIT

-26,29

COMMON/CT01/LCAT,NFOUT,LFOUT(6),NMOUT(6)

▽ FOR,\* DSN,DSN

-45

REWIND 7

REWIND 8

▽ MAP NMP

SEG NM-MPAK-\*(INCONT,SHAPE,FNMAT,NMOUT)

MPAK SEG VIP-VLIN-RVEC-WVEC-RHEAD-WHEAD-LOCATE

▽ XQT NMP

NM DATA DECK

▽FIN

Stability Derivatives and Static Stability (SDSS) ProgramI Generate Absolute SDSS ProgramProgram Required

Symbolic and relocatable SDSS in PCFC tape (= Tape C)

Output Files Generated

Tape G = A08126

Absolute SDSS tape

File Destinies

Tape G: SDSS

Cover Sheet Format

Ref-SDSS-I/1

Control Cards

Ref-SDSS-I/2

Ref-SDSS-I/1

PROGRAMMER D. Colunga			BADGE NO. 1048	BOX NO. 16-C	PHONE NO. 5971	DATE 6/16	PRIORITY & INITIALS
DIVISION CODE FD 32	PROG. NO. E169	PROJ. NO. 3696E	EST. TIME 5	MAX. TIME 6	LINES OUTPUT 2	DECK NO. 1	

OPERATING SYSTEM			TYPE OF RUN		LOG NO.
1108 FORTRAN V <input type="checkbox"/>	3200 SCOPE <input type="checkbox"/>	PROD. <input type="checkbox"/>	TEST <input checked="" type="checkbox"/>	COMPUTER REQUIREMENTS	
1108 FORTRAN IV <input checked="" type="checkbox"/>	3200 SMARTS <input type="checkbox"/>	OTHER (EXPLAIN BELOW)		1108 <input checked="" type="checkbox"/>	3200 <input type="checkbox"/>
1108 OTHER <input type="checkbox"/>	3200 OTHER <input type="checkbox"/>			OTHER	

INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	C	PCFC	C	G	A08126	G		Yes	

WORKING TAPES				REEL NO.	NO. FRAMES
			4060 <input type="checkbox"/>		
			16 MM <input type="checkbox"/>	35 MM <input type="checkbox"/>	

ABNORMAL STOPS	TOTAL TAPE DRIVES USED 2	ACTUAL TIME USAGE
STOP AT LOC. SR:	DUMP INSTRUCTIONS	STOP
LOOPING: LOC. THRU	NO DUMP X	
EXCESS OUTPUT	DUMP ON STOP	START
EXCESS TIME	DUMP ON LOOP	
	OTHER	

PROGRAMMER'S COMMENTS

\* PCFC is a special Texas A&amp;M PCF Tape

OPERATOR'S COMMENTS

SYSTEM  
OPERATOR

VP RUN 01048,FD32,C16,3696E,E169,C,6,1  
VN MSG FILE REQ TAPE 2 FH432 0 FSTRN 1  
VW ASG C=PCFC  
V ASG E  
V ASG G=A08126  
V COM 03477775  
V XQT CUR  
TRW C  
IN C  
ERS  
IN C  
TRW C  
TRW E  
TWR E, CARDIN/CODE  
TWR E,DCONRL/CODE  
TWR E,DEXDW/CODE  
TWR E,DPERT/CODE  
TWR E,DSTAB/CODE  
TWR E,DWT/CODE  
TWR E,DGYRO/CODE  
TWR E,FA/CODE  
TWR E,FT/CODE  
TWR E,FTOTAL/CODE  
TWR E,F2F3/CODE  
TWR E,MATPRT/CODE

D. CC: UNGA



TWR E,SPECS/CODE  
TWR E,TA/CODE  
TWR E,TMDATA/CODE  
TWR E,TMPRT/CODE  
TWR E,TRIM/CODE  
TWR E,TRIMCC/CODE  
TWR E,TRIMIT/CODE  
TWR E,TS/CODE  
TWR E,WTDATA/CODE  
TWR E,WTDER/CODE  
TWR E,CSAB/CODE  
TWR E,CINVER/CODE  
TWR E,VIPA/CODE  
TWR E,DATE/CODE  
TWR E,INTURP/CODE  
TWR E,DATA/CODE

TEF E

ERS

TRW E

IN E

TRW E

∇ MAP CARDAL,CARDAL

SEG CARDIN-DPERT-DWT-DSTAB-DCONRL-DGYRO-DTRST-MATPRT-;  
SPECS-INTURP-DATA-DATE-DEXDW

DEF CARDIN

V MAP TRIA,TRIA

SEG TRIM-TRIMIT-FTOTAL-TMPRT-CINVER-CSAB-WTDER-F2F3-;

WTDATA-TRIMCC-FT-FA-VIPA-FS-TA-TS-TMDATA

DEF TRIM

V XQT CUR

TOC

TRW C

TRW E

OUT E

TEF E

TRW E

ERS

IN C

ERS

IN C

TRI C

IN E

TRI E

V MAP SDSSPE,SDSSPE

SEG SDSS-MPAK-\*(ONE,ENGINE,TRANS,DUAL,BASIC,SIX,POST)

MPAK SEG RHEAD-WHEAD-RVEC-WVEC-VLIN-VIP

ONE SEG PREPAR-\*(CARDIN,TAPEIN)

SIX SEG STACON-\*(DONE,TRIM,SHAPE,INTDW,SDSP,PERT1,P2,PERT3,PERT4)

P2 SEG PERT2-\*(RDULSC-VAICA-UAICS-UDATA-UCTRAN,UPRES)

V ABS SDSSPE,SDSSDE

Ref-SDSS-1/2-4/4

V XQT CUR

TOC

TRW G

OUT G,2

TEF G

TRI G

V EOF

VFIN

## Stability Derivatives and Static Stability (SDSS) Program

### II SDSS Run

#### Input Required

- |                                      |                          |
|--------------------------------------|--------------------------|
| (1) Tape A = GD tape = A05090        | (File generated by GD)   |
| (2) Tape B = SAIC tape = A01827      | (File generated by SAIC) |
| (3) Tape C = Catalog tape = A08118   | (File generated by ISIC) |
| (4) Tape D = Symm ISIC tape = A14061 | (File generated by ISIC) |
| (5) Tape E = Asym ISIC tape = A12922 | (File generated by ISIC) |
| (6) SDSS Data Deck                   |                          |

#### Program Required

Tape Z = ABS SDSS tape = A08126 (File generated by SDSS-1)

#### Program Correction Required

None

#### Output File Generated

- |                         |  |
|-------------------------|--|
| (1) Tape F = SDSS tape  | { Loads matrices for SLOADS<br>Data for CER and TH |
| (2) Punched card output |  |

#### File Destinies

Tape F: SLOADS  
CER  
TH

#### Cover Sheet Format

Ref SDSS-II/1

#### Control Cards

Ref SDSS-II/2

Ref-SDSS-II/1

PROGRAMMER Colunga			BADGE NO. 1619	BOX NO. C-16	PHONE NO. 5971	DATE 6/23	PRIORITY & INITIALS
DIVISION CODE EX 24	PROG NO. E169	PROJ. NO. 3696E	EST TIME 10	MAX TIME 15	LINES OUTPUT 5k	DECK NO.	

OPERATING SYSTEM			TYPE OF RUN		LOG NO.
1108 FORTRAN V <input type="checkbox"/>	3200 SCOPE <input type="checkbox"/>	PROD. <input type="checkbox"/>	TEST <input type="checkbox"/>	COMPUTER REQUIREMENTS	
1108 FORTRAN IV <input checked="" type="checkbox"/>	3200 SMARTS <input type="checkbox"/>	OTHER (EXPLAIN BELOW)		1108 <input type="checkbox"/>	3200 <input type="checkbox"/>
1108 OTHER <input type="checkbox"/>	3200 OTHER <input type="checkbox"/>			OTHER	

INPUT TAPES				OUTPUT TAPES					
RACK	UNIT	REEL NO.	FILE NAME	UNIT	REEL NO.	FILE NAME	C	SAVE	PROCESSING REQUIRED
	A	A05090	A	F		F		Yes	
	B	A01827	B						
	C	A08118	C						
	D	A140061	D						
	E	A12922	E						
	Z	A08126	Z						

WORKING TAPES				4060 <input type="checkbox"/>	REEL NO.	NO. FRAMES
				16 MM <input type="checkbox"/>	35 MM <input type="checkbox"/>	

ABNORMAL STOPS	TOTAL TAPE DRIVES USED	ACTUAL TIME USAGE
STOP AT LOC. SR.	7	STOP
	DUMP IF INSTRUCTIONS	
LOOPING LOC. THRU	NO DUMP X	START
EXCESS OUTPUT	DUMP ON STOP	
EXCESS TIME	DUMP ON LOOP	
	OTHER	

PROGRAMMER'S COMMENTS

OPERATOR'S COMMENTS

SYSTEM  
OPERATOR

VP RUN 01048,FD32,C16,3696E,E169,C,15,5  
VN MSG FILE REQ TAPE 7 FH432 2 FSTRN 16  
VN MSG PUNCHED CARD OUTPUT  
V ASG A=A05090  
V ASG B=A01827  
V ASG C=A08118  
V ASG D=A14061  
V ASG E=A12922  
V ASG F=F  
V ASG Z=A08126  
V ASG I,J,K,L,N,O,P,Q,R,S,T,U,V,W,X,Y  
V XQT CUR  
TRW Z  
IN Z  
REL Z  
V XQT SPSSDE

D. COLUNGA

SDSS DATA DECK

VFIN

## Program To Fix Up SDSS

```

V RUN
vN MSG TAPE 2 FH432 0 FSTRN 2
V ASG A= Current SDSS PCF Tape
V ASG B=B
V ASG C,D
V COM 03477775
V XQT CUR
  TRW A
  FIND A,SPECS/SYMBOLIC
  TRD A
V FOR, *SPECS, SPECS
-211
      REWIND NT17
V XQT CUR
  TRW C
  OUT C,1          SYMBOLIC
  TEF C
  TRW D
  OUT D,3          RELOCATABLE
  TEF D
  ERS
  TRW A
  TRW C
  IN A
  IN C
  TRW B
  OUT B            UPDATED SYMBOLIC FILE
  TEF B
  ERS
  IN A
  TRW D
  IN D
  OUT B ←          RELOCATABLE FILE UPDATED
  TEF B

```

TRW A

TRW B

REL A

ERS

IN B

LIST SPECS

TRW B

REL B

V FIN



## Geometry Definition Plot Program (GDPLLOT)

### Input Required

- (1) GD Tape = ZZ0424 (Generated by GD)
- (2) GDPLLOT Data Deck

### Program Required

GDPLLOT program (source) Deck consist of

- (1) GDPL
- (2) PGD
- (3) LOCATE and
- (4) Subprogram of the CALCOMP and GERBER basic software namely PLOT, LINE, AXIS, NUMBER, SCALE, SYMBOL, STOPP, etc.
- (5) Subprogram in S/360 Library such as DATE

### Program Change Required

Subroutine STOPP (equivalent to LINE4 of CALCOMP package) should be added to the last plot program.

### Output Generated

- (1) GERBER Tape (Used as the input data for GERBER plotter: 7track)
- (2) GERBER plotted sheet
- (3) "Geometric Data from Geometry Definition File" (printed sheet)

### Job Control Cards

Ref-GDPL-1

### OS/360 Job Ticket

Ref-GDPL-2

### GERBER Job Ticket

Ref-GDPL-3

### Work Statistics

- (1) IBM S/360      Card in 910  
                         Card out 0

Lines 1932 line

Time 1.12 min.

Cost \$8.52

(2) GERBER 622 Time about 40 min.

```
//DQ835    JOB (909T4,3-C--,002,003,DC)," D. COLUNGA  SPACE SHUTTLE  "  
/*CLASS      F              230k - 320k              TAPE SETUP  
/*SETUP  
// EXEC GERBER,PARM.FORT=BCD,REGION=320k  
//FORT.SYSIN DD *
```

## GDPLLOT SOURCE DECK

```
//GO.FT01F001 DD UNIT=TAPE9,  
// VOL=SER=ZZ0424,  
// DISP=(OLD,PASS),  
// LABEL=(1,NL),  
// DCB=(RECFM=VSB,LRECL=7196,BLKSIZE=7200)  
//GO.SYSIN DD *
```

## GDPL DATA DECK

```
/*
```

OS/360 JCB TICKET

Date \_\_\_\_\_

JOB#

### User Comments

SLIP  
ZAMI

DD  
NAME

DATA SET NAMEVOLUMESerialTypeAction  
CodeFile  
Protect  
RingLIBRARY  
CONTROL

When Pulled	When Filed
-------------	------------

SLOT NO.
-------------

GOFT20F001APTape

zz0455

Tape 7

Output

Out  
In

FT01F001

zz0424

Tape 9

Input  
→ output

Out  
-hr

### Operator Comments

Program terminated normally ☐ Yes ☐ No

Time turned in \_\_\_\_\_

4. If not specify system ABEND Code\_\_\_\_\_ I/O Error on\_\_\_\_\_

Time Executed \_\_\_\_\_

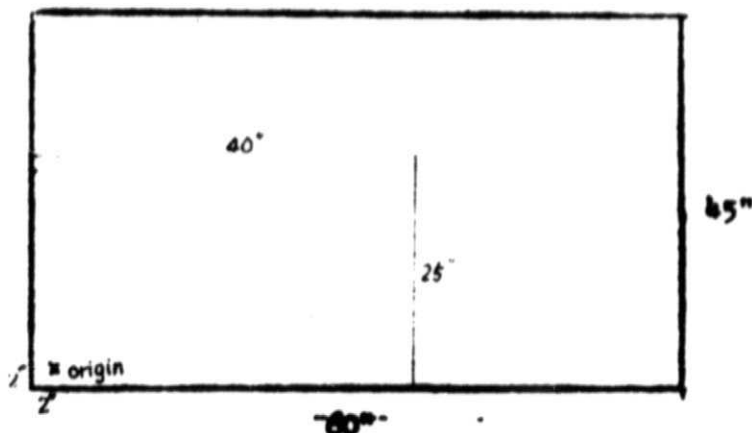
Step 6 ☐ Yes ☐ No          JCL Error ☐ Yes ☐ No

specify reason.

## CEPHER 622 JOB TICKET

USER NAME D. Colunga DATE \_\_\_\_\_ CAMPUS PHONE \_\_\_\_\_  
 ACCOUNT NUMBER \_\_\_\_\_ TAPE NUMBER ZZ0455 SIGNATURE \_\_\_\_\_

On the plotter area below, roughly sketch your expected results. Clearly show the starting point for the plot, and note the total width and height of your drawing.



## NOTE TO OPERATOR

NUMBER OF FILES ON TAPE 1 NUMBER OF PLOTS PER FILE 1

SCALE AT WHICH PLOT IS TO BE DRAWN: .5 XX 2 3 4 5 6 7 8 9 10 16

PPH NO. \_\_\_\_\_ TYPE B,P COLOR Black

TYPE OF PAPER: WOOD VELLUM OTHER

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DO NOT WRITE BELOW THIS LINE

DATE PLOTTED \_\_\_\_\_ TIME OF DAY \_\_\_\_\_ PLOT TIME \_\_\_\_\_

STARTING TIME \_\_\_\_\_ FINISH TIME \_\_\_\_\_

RELOT FILE \_\_\_\_\_ STOP \_\_\_\_\_

RESTART FILE \_\_\_\_\_ STOP \_\_\_\_\_

ORIGINAL PAGE IS  
OF POOR QUALITY

## Program Correction For GDPL

### 1. Problem

GDPL was originally programmed for plotting data using the CALCOMP. This program could be used for the GERBER plotter except that in the GERBER the last line was not produced.

### 2. Program Change Suggestion

On the GERBER CALL STOPP gives the required final line.  
Therefore in GDPL

#### ORIGINAL PROGRAM

CARD #

0061 60 READ (NTGD) (STOR(I),I=1,10),X0,Y0,Z0,THETR,STOR(11)  
(Comment: READ NEW DATA from GD tape)

0062 IF(STOR(1).EQ.0) GO TO 400  
(Comment: Check if DATA is completed)

:  
:  
:  
:  
:

0352 400 PGNU=PGNU+15.

0353 CALL PLOT (PGNU,-YPAGE,-3) (To reset origin for next file)

0354 CALL PGD (NTGD,KFILGD) (To print GDTAPE)

#### Correction

Insert CALL STOPP between 0353 and 0354

### 3. Document

There are no documents containing GERBER instructions. However, subroutine "STOPP" is equivalent to subroutine "LINE4" of CALCOMP basic package.

Subroutine LINE4 (from LOCAL OS/360 Library Subroutines pp 30.0)

LINE4 - is used to purge the buffer to insure that the last plot of a job is complete. An end file mark is placed on the plot tape. LINE4 should be the last plotting routine called and should only be called once.

CALL LINE4 No arguments are used.